Small Business Innovation Research/Small Business Tech Transfer

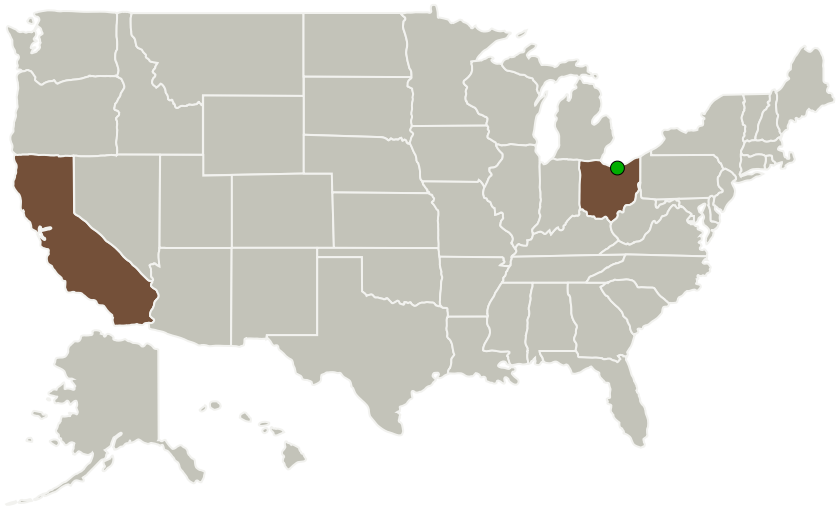
Affordable Maximum Performance Solar Array for NASA and Commercial Missions, Phase II

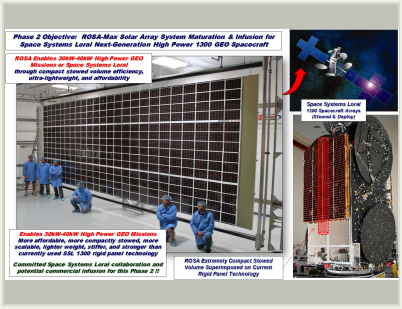
Completed Technology Project (2013 - 2017)

Project Introduction

Deployable Space Systems, Inc. (DSS), and Space Systems Loral as a key subcontractor and potential commercial infusion partner, will focus the proposed SBIR Phase 2 program on the TRL 5/6 technology maturation / development of an affordable, lightweight, high power, maximum performance solar array specifically configured to next-generation high power geostationary-earth-orbit commercial mission requirements, and in support of future NASA missions. DSS's recently completed NASA SBIR Phase 1 program has established a TRL 3/4 classification for an innovative affordable maximum performance solar array as applied to a multitude of NASA and commercial missions. Significant concept feasibility, design/analysis, trade study/evaluation, and proof-of-concept hardware build/test efforts executed during the Phase 1 program have validated the proposed technology as a potentially revolutionary photovoltaic flexible blanket solar array system that provides enabling performance in terms of: High specific power / lightweight (up to 200 W/kg BOL at the array level with ZTJ PV), compact stowage volume (>60-80 kW/m3 BOL), high deployed strength and stiffness, mechanical and electrical simplicity, high reliability, high modularity, rapid production capability, high platform flexibility and applicability to many missions, and ultra-affordability (>24% recurring cost savings at a minimum). Building off the success of the recently completed Phase 1 program, the proposed Phase 2 follow-on program will significantly increase technology readiness to TRL 5/6, ready it for an end-user qualification program, and drastically accelerate commercial infusion.

Primary U.S. Work Locations and Key Partners





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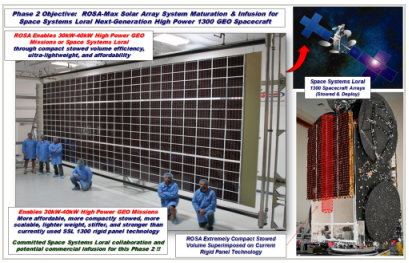
Organizations Performing Work	Role	Type	Location
Deployable Space Systems, Inc(DSS)	Lead Organization	Industry	Goleta, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

Images



Briefing Chart Image
Affordable Maximum Performance Solar Array for NASA and Commercial Missions, Phase II *(https://techport.nasa.gov/image/135934)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Deployable Space Systems, Inc (DSS)

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Brian R Spence

Co-Investigator:
Brian Spence

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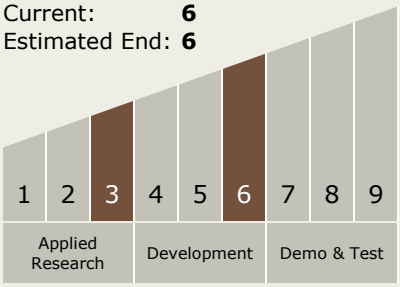
Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.1 Power Generation and Energy Conversion
    - TX03.1.1 Photovoltaic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System